

The following Listing of the Claims will replace all prior versions and all prior listings of the claims in the present application:

**Listing of The Claims:**

1-25. (Cancelled)

26. (Currently Amended) A method for inhibiting bacterial growth, comprising contacting bacteria *in vitro* with an amount of an inhibitor effective to reduce the activity of a polypeptide comprising the amino acid sequence of SEQ ID NO: 16, wherein said inhibitor inhibits bacterial growth.

27-28. (Cancelled)

29. (Previously presented) The method of claim 26 wherein said inhibitor is selected from the group consisting of a small molecule, a peptidomimetic compound, and a bacterial growth inhibitory bacteriophage polypeptide.

30. (Previously Amended) The method of claim 26 wherein said inhibitor is a peptide synthesized by a recombinant expression system and purified, or artificially synthesized.

31-52. (Cancelled)

53. (Currently Amended) A method for inhibiting bacterial growth, comprising contacting a bacteria *in vitro* with an effective amount of an inhibitor capable of decreasing that decreases the activity of a polypeptide selected from the group consisting of:

- a polypeptide comprising the amino acid sequence of SEQ ID NO: 2;
- a polypeptide comprising the amino acid sequence of SEQ ID NO: 16; and

- a polypeptide comprising the amino acid sequence of SEQ ID NO: 18

wherein said inhibitor inhibits bacterial growth.

54-56. (Cancelled)

57. (Previously presented) The method of claim 53, wherein said inhibitor is selected from the group consisting of a small molecule, a peptidomimetic compound, and a bacterial growth inhibitory bacteriophage polypeptide.

58. (Previously presented) The method of claim 53, wherein said an inhibitor is a peptide synthesized by a recombinant expression system and purified, or artificially synthesized.

59. (Currently Amended) A method for inhibiting bacterial growth, comprising contacting a bacteria *in vitro* with an amount of an inhibitor effective to decrease the activity of a polypeptide selected from the group consisting of:

- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18; and

- fragments comprising an amino acid sequence having at least 50 contiguous amino acids from the amino acid of SEQ ID NO: 2; SEQ ID NO: 16; and SEQ ID NO: 18;

wherein said polypeptide has an activity selected from the group consisting of:

- a) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10 fold reduction of  $^3$  H-thymidine incorporation in a bacterial DNA replication assay relative to  $^3$  H-thymidine incorporation in an assay lacking bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof;
- b) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10% inhibition of plasmid replication by bacteriophage 77 ORF 104 protein or a DnaI-binding fragment in a plasmid replication assay; and
- c) aiding in the loading of *S. aureus* DnaC helicase onto replicative primosomes

wherein said inhibitor inhibits bacterial growth.

60-62 (Cancelled)

63. (Previously presented) The method of claim 59, wherein said inhibitor is selected from the group consisting of a small molecule, a peptidomimetic compound, and a bacterial growth inhibitory bacteriophage polypeptide.

64. (Previously presented) The method of claim 59, wherein said inhibitor is a peptide synthesized by a recombinant expression system and purified, or artificially synthesized.

65-66. (Cancelled)

67. (Currently amended) A method for inhibiting ~~a bacterium~~ bacterial growth, comprising contacting ~~the bacterium~~ bacteria *in vitro* with an inhibitor binding to an active domain of *S. aureus* DnaI.

68. (Previously presented) The method of claim 67, wherein said active domain comprises amino acids selected from the group consisting of amino acids 1-313, amino acids 64-313, and amino acids 150-313 from SEQ ID NO: 2.

69. (Previously presented) The method of claim 67, wherein said inhibitor consists of an antibacterial agent inhibiting the biological activity of said *S. aureus* DnaI.

70. (Previously presented) The method of claim 69, wherein said biological activity is selected from the group consisting of:

- a) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10 fold reduction of <sup>3</sup> H-thymidine incorporation in a bacterial DNA replication assay relative to <sup>3</sup> H-thymidine incorporation in an assay lacking bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof;
- b) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10% inhibition of plasmid replication by bacteriophage 77 ORF 104 protein or a DnaI-binding fragment in a plasmid replication assay; and
- c) aids in the loading of *S. aureus* DnaC helicase onto replicative primosomes.

71. (Previously presented) The method of claim 67, wherein said binding inhibits *S. aureus* DnaI activity of aiding in the loading of *S. aureus* DnaC helicase onto replicative primosomes.

72. (Cancelled)

73. (Cancelled)

74. (Currently amended) A method for inhibiting bacterial DNA synthesis, comprising contacting a bacterium *in vitro* with an effective amount of an inhibitor ~~capable of decreasing which decreases~~ the activity of a polypeptide selected from the group consisting of:

- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 2;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 16;
- a DnaI polypeptide comprising at least 75% identity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18;
- a DnaI polypeptide comprising at least 85% similarity over 50 or more amino acids to the amino acid sequence of SEQ ID NO: 18; and
- fragments comprising an amino acid sequence having at least 50 contiguous amino acids from the amino acid of SEQ ID NO: 2; SEQ ID NO: 16; and SEQ ID NO: 18;

wherein said polypeptide has an activity selected from the group consisting of:

- a) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10 fold reduction of  $^3$  H-thymidine incorporation in a bacterial DNA replication assay relative to  $^3$  H-thymidine incorporation in an assay lacking bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof;

- b) directly interacting with bacteriophage 77 ORF 104 protein or a DnaI-binding fragment thereof in a manner that results in at least 10% inhibition of plasmid replication by bacteriophage 77 ORF 104 protein or a DnaI-binding fragment in a plasmid replication assay; and
- c) aiding in the loading of *S. aureus* DnaC helicase onto replicative primosomes, wherein said ~~decrease in activity~~ inhibitor inhibits bacterial DNA synthesis.